

REVOLUTIONALIZING EDUCATION: A CONTEMPORARY APPROACH TO TEACHING THROUGH INNOVATIVE PEDAGOGY AND TECHNOLOGY UTLIZATION

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ABSTRACT

The necessity to adopt innovative pedagogical strategies and upgrade technology integration in teaching and learning has become increasingly clear as a result of the impact of the pandemic on school curricula and learning delivery. This study was undertaken with the intent to explore the influence of innovative pedagogical attitude on technology integration. Public secondary school teachers participated in this study by providing significant data and answering adapted questionnaires. A quantitative-correlational design with multiple linear regression analysis for data interpretation was used in this study. Results showed that secondary school teachers displayed positive attitude towards adoption of innovative pedagogies as well as on technology integration to facilitate students' learning. Teachers' innovative attitude was discovered to be an important indicator of technology integration among teachers which means that who maintain a positive disposition towards innovative teaching are willing to explore and use existing new technologies to engage their students. Hence, teachers need to be creative and integrate the use of technology in their teaching practices so as to create a positive learning environment that fosters student engagement and enhances learning outcomes.

Keywords: innovative pedagogy, attitude, technology integration, secondary schools

Introduction

The shift in curriculum delivery strategy pandemic may have caused certain setbacks among educational stakeholders but it may have also contributed to educational innovations like interactive digital instruction in teaching and learning. Internationally and locally, schools have used internet channels to teach learning skills online.

Educational research is progressively acknowledging creative teaching strategies as a method for enhancing student learning results. It entails establishing dynamic interactions between teachers and students to facilitate student learning and personal development. Educators are cognitive facilitators who organize student groups that obtain knowledge by collaborating with one another and their teachers. Such strategies are achieved through the use of information and

communications technology in education which enables teachers to design creative and innovative teaching strategies that enhance student learning (Hughes, 2018).

In the educational context during the pandemic, classes and other educational activities are increasingly offered online, demonstrating the pedagogical use of technology in teaching and learning. Teachers may post student homework and activities online, and students can report and complete assignments in the same way. Tools like Zoom, Google Meet, and Microsoft Teams enable for real-time teacher-student interactions. Otherwise, asynchronous digitizing tools like Google Forms and Kahoot are employed. Technology is still used in schools that employ a modular learning strategy by linking to online learning resources (Akib et al., 2020).

The literature on classroom technology utilization is substantial. However, these studies largely concentrate on teachers' pedagogical technology abilities (Abbott, 2016) or schools', teachers', and students' access to information technology for classroom usage (Bingimlas, 2009). Many of these studies also concentrate on the impact of technology usage on students' academic achievement, but few studies have focused on the impact of innovative attitude of teachers to their utilization of technology.

In the local context, the willingness among teachers to utilize technology pedagogically exists. However, teachers are divided on the idea of fully implementing full online learning. Many of the teachers lack the technological familiarity and of the capacity to connect competencies and technology therefore making the implementation of online learning is specifically inefficient for them. Some teachers are otherwise proficient in the utilization of technology in their instruction and are able to effective use technology to their advantage particularly in their classroom instruction.

The purpose of this study is to investigate the creative attitudes held by teachers and the ways in which such attitudes effect topics such as the utilization of technology. A study on these two aspects in schools will help to clarify future discussions on this topic and will also assist in the establishment of guidelines that promote learning and teaching methods for children of all different backgrounds during this challenging time.

Objectives of the Study

This study was primarily focused on determining the influence of innovative pedagogical attitude on the utilization of technology among secondary school teachers in the new normal education. Specifically, this study aimed to:

- Determine the level of innovative pedagogical attitude of teachers;
- Determine the level of technology utilization of teachers;
- Test the significance of the relationship between innovative pedagogical attitude and technology utilization of teachers; and

Explore what domain of innovative pedagogical attitude best influences technology utilization among teachers.

1.2 Significance of the Study

This study would provide an avenue for the policymakers, school heads and teachers to have first hand knowledge of the degree of teachers' attitudes towards fostering instructional innovation and creativity. This research would also allow the aforementioned stakeholders to reflect on degree to which teachers on the field utilize technology for the improvement of their teaching instruction during this time of the pandemic. Such knowledge would allow them to craft specifically designed policies to target low-level dimensions of teachers' teachers' attitudes towards fostering instructional innovation and their pedagogical utilization of technology to uphold and further uplift the country's educational quality with or without educational emergencies in the future. Further, the results would provide light on the areas where pupils are having difficulty adjusting amid this educational crisis. With these challenges identified, stakeholders and policymakers may devise intervention strategies to address them, therefore improving teachers' pedagogy and skill set for teaching during the Pandemic, resulting in improved student results. Also, The outcomes of this investigation would let forthcoming investigators in the academe, having parallel adversities in associated or other disciplines, benchmark their future undertakings.

1.4 Scope and Limitations of the Study

This research was focused on determining the levels of teachers' level of innovative teaching attitudes and their pedagogical utilization of technology in the new normal classroom setting as well as on determining the degree to which the former variable influence the latter. With such, techniques on gathering such data for meaning full determination of such goals were only limited to gathering numerically scale responses through a completely structured, adapted, Likert-scale type questionnaire. Further, since data were only gathered from the respondents – secondary school teachers in Matanao, Bansalan and Matanao Districts, results of this quantitative inquiry can only be generalized within the locale and may or may not reflect to the actual situation of the aforementioned variables within the division, region or the national levels.

REVIEW OF RELATED LITERATURE

This chapter presents significant findings of studies and researchers related to the research topic. Particularly, presented in this chapter are definitions, methods and findings of studies pertaining to innovative pedagogical attitudes and its indicators: idealized influence, inspiration motivation, intellectual stimulation, and individualized consideration; as well as those pertaining to teachers' utilization of technology and its indicators: facilitating learning, data and visualization, collaborative teaching strategy, and online interaction and communication.

2.1 Innovative Pedagogical Attitudes

Innovative teaching practices include setting behavioral models that empower and inspire students, transcend instructors' self-interests, and boost students' confidence (Beauchamp et al., 2010). The

phrase "innovative teaching" describes teachers who think lessons may be life-changing. This early idea was attempted to encourage student learning and personal development via group-based activities including experiencing course topics and reflecting. Such activities, when led by a teacher, transform how children learn and live. It is then explored how teachers may motivate students to work together to fulfill their personal and collective potential by creating a common vision for a course (Slavich & Zimbardo, 2017).

Transformational teachers help students recognize their potential. Innovative teachers become results-oriented, self-driven, others-focused, and transparent (Anding, 2015). Further, innovative teaching practices explain students' self-determined motivation and learning pleasure, according to Beauchamp and Morton (2017).

Furthermore, creative teaching was attributed to the Transformational Leadership Theory, which provides a universal framework for understanding human behavior across leadership contexts and cultural boundaries (Bass & Riggio, 2019). Innovative teaching involves idealistic influence, motivating students, intellectual stimulation, and individualized attention.

2.1.1 Idealized Influence

Idealized influence is how much teachers are considered as role models. Because they're admired, respected, and trusted, students seek out their teachers. A teacher's idealized influence might emerge as a trusted and revered trait or as conduct in which they display great behavior and sacrifice their own desires to achieve their students' learning goals (Moss & Ritossa, 2017).

Idealized influence measures how much teachers are seen as role models. Peers appreciate, respect, and trust teachers, therefore students seek them out. Idealized influence in teachers may emerge as a trusted and revered trait or as a behavior in which they sacrifice their own wants to achieve the workgroup's aims. Idealized teachers are more inclined to innovate and behave congruently with the school's principles and values. These teachers appreciate a strong feeling of purpose and a shared mission among their learners (Bass & Riggio, 2019).

A teacher's idealized influence comprises of charming gestures that make students glad to be associated with him or her. A teacher must sacrifice personal interests to enhance students' interests. Transformational teachers with idealized traits are strong and confident and can persuade others to overcome hurdles and succeed. They concentrate on trusting each other and their basic principles and viewpoints in their talks. They also emphasize having a clear purpose and mission statement. Students typically mimic professors with romanticized authority, considering them as captivating incarnations of the school's beliefs and aims (Hughes, 2018).

Teachers are role models and mentors for learners to build trust. Idealized teachers act as good role models for children (Kimeto et al., 2017). Idealized teachers exemplify integrity, trust, honesty, respect, and purpose. Idealized teachers have a clear vision and purpose, gaining students' confidence and respect (Alfonsina et al., 2019). Teachers must demonstrate a core set of values, beliefs, and ethical standards in their work behavior to exert idealized influence. Teachers may model work ethics for kids.

2.1.2 Inspirational Motivation

Inspirational motivation is the extent to which a teacher articulates an enticing and motivating vision for his or her students (Judge & Piccolo, 2014). Inspirational motivation comprises teacher communication targeted at motivating and energizing students to attain better educational norms and learning objectives (Verma et al., 2019).

Inspirational motivation, the second component of transformational teaching, includes those who talk favorably about the future and present a compelling vision. Inspirational teachers address what has to be done and are confident in their abilities. Inspirational encouragement delivers an attractive glimpse of what to consider. This kind of motivated behavior develops collaboration and generates excitement, especially while facing challenges. This feature of transformational teaching is important in education since enthusiasm and motivation are needed to maintain student optimism (Hughes, 2018).

Transformational teachers inspire and encourage learners by providing significance and challenging tasks. These teachers urge students to anticipate desirable futures. These teachers explain goals and show dedication. Individual and team spirits are fueled by teachers' passion and optimism because they demonstrate faith that students' educational objectives will be met. Inspirational motivation and idealized influence comprise charismatic-inspirational leadership (Bass & Riggio, 2019).

2.1.3 Intellectual Stimulation

Intellectual stimulation is how much teachers inspire learners to be inventive while solving difficulties. Intellectual stimulation happens when a teacher challenges students' preconceptions and promotes alternate ways of thinking (Verma et al., 2019).

Transformational teachers explore diverse viewpoints while addressing challenges and encourage students to do the same. Intellectual stimulation promotes nontraditional thinking and different ways to learning activities and tasks. They re-examine key assumptions to evaluate whether they're correct (Hughes, 2018).

Transformational teachers may stimulate students' inventiveness by reframing obstacles and handling situations in creative ways. It's called "intellectual stimulation." These teachers encourage invention, and mistakes aren't publicly reprimanded. When intellectually pushed, students evaluate unchallenged ideas. This allows teachers to examine situations from many perspectives. Teachers may suggest intellectually stimulating ways to complete tasks (Bass & Riggio, 2019).

2.1.4 Individualized Consideration

Transformational teachers examine each student's accomplishments and development needs. These teachers pay additional attention to students' opinions, promoting two-way dialogue. Transformational teachers recognize students' individual needs and ambitions. Transformational teachers provide assignments to help students develop or assess whether they need more support or an intervention. Individualized attention enables teachers to spend more time educating and mentoring learners as individuals. Transformational teachers improve students' abilities (Bass & Riggio, 2019).

Individualized attention involves respecting students' needs and emotions to promote goal-setting and academic development. It was noted that teachers who practice individual consideration

evaluate their student's developmental needs and potential while coaching and delivering feedback (Alfonsina et al., 2019). Transformational teachers care about their students' needs and emotions. When teachers respect pupils individually, they show compassion and help them improve personally and academically (Ekpoh & Asuquo, 2018). Customized consideration teachers give pupils individualized attention and regard them as individuals (Ogola et al., 2017). It was found that transformational teachers are excellent listeners who exhibit individual care (Arokiasamy et al., 2016). Teachers who allocate activities based on students' needs and skills boost academic achievement (Chebon et al., 2019).

2.2 Teachers' Integration of Technology

Access to information and communication technology (ICTs) in classrooms has expanded substantially in recent decades, but integration remains patchy. There's strong evidence that integration happens and that teachers' perspectives affect it (Inan & Lowther, 2017). Nonetheless, it is necessary to comprehend both subject-specific and general technology practices of teachers. Teaching a variety of subjects need a variety of approaches and materials. Typically, educational technology seeks to accomplish certain learning objectives (Ottenbreit-Leftwich et al., 2017). The meta-analysis of 25 years of research on educational technology stresses the necessity to comprehend how technologies are being used in education. Teachers' pedagogy, instructional strategies, curricula, and school culture are enhanced by digital technology (Spillane & Hopkins, 2017). Teaching methods must be investigated more to comprehend these relationships. In order to do this, it is necessary to experimentally compare teachers' use of digital technology across subject areas and situations (Cox & Marshall, 2017).

Teachers' professional needs were also driven by instructional efficiency and effectiveness. Online grading, providing student work examples, parent contact, organization, classroom resources, and professional development were identified as classroom facilitators. To boost understanding, higher-order thinking skills like visualization and data manipulation, and future job and learning skills like communication, teachers used technology to engage and encourage students. Digital technology is linked to teacher incentives. Now we'll examine the link between digital technology usage and projected learning results (Ottenbreit-Leftwich et al., 2017).

In recent years, technology has improved swiftly, leading to widespread use. Modern technology are popular. Technology helps people live, work, navigate, and locate stuff. For school success, students need ICT skills. As technology advances, it's more important to grasp the success formula, which includes the student, teacher, material, and context. The usefulness of utilizing the internet for teaching and learning has been explored extensively (Simuforosa, 2018).

Few teachers use ICT in their lectures and topics (Wanjala et al., 2016). Teachers grow professionally in many ways. Some teachers learned how to use ICT via college or university courses and/or personal or expert supervision. When teachers use ICT to promote learning, their role shifts from information delivery to facilitation (Rachmawati & Cynthia, 2010). Motivating school administrators to employ ICT-based learning to increase student competence, ability, and skills is another difficulty.

Moreover, most teachers had intermediate ICT expertise and perceived it positively (Mahmud & Ismail (2019). ICT seminars and trainings improve teachers' knowledge, skills, and attitudes. Therefore, teachers with more teaching experience and/or who are older must be found and offered ICT training and seminars. Further, research indicated that utilizing the internet in the classroom helped teachers and students (Azizan, 2019). Likewise, it was found that most teacher-educators who advocate integrating ICT had sufficient sufficient skills in ICT. They use the Internet to assist their classes, especially search engines (Goktas et al., 2017). Contradictory to this, a study found that high school teachers were unable to use IT resources in education and preferred conventional teaching techniques and materials. Secondary school instructors couldn't utilize ICT in class, he discovered. Only 13% of high school teachers use powerpoint (Rafeedali, 2019).

Furthermore, classroom ICT use is linked to teachers' computer motivation and supportive ICT use. Constructivist concepts, computer attitudes, and ICT-related educational policies all affect ICT integration indirectly. The complex relationship between teacher traits and classroom ICT integration is comparable with non-Asian research. Chinese culture explains many differences. Teachers' constructivist views are indirectly linked to ICT integration (Sang et al., 2019).

Another study determined that the broadcast materials supported student learning and offered psychological support. The online site offered students with access to multimedia information, and synchronous classes provided chances for social engagement, motivation, and real-time questioning. The pupils were worried, however, that the broadcast materials and online site did not fully prepare them for exams. Similar to previous circumstances, pupils felt unprepared for a sudden transition to online learning (Fiş Erümit, 2020).

In addition, researchers believe that successful e-inclusion is impacted by accessible technology, family relationships, and the ability to construct individualized synchronous and asynchronous interactive learning activities. In this situation, children are reliant on their parents, which exacerbates digital disparities. For the inclusion of teachers at vocational schools in Germany, it was determined that school leaders must create and communicate a meaningful agenda or plan, a dependable technological infrastructure must exist, and teachers must have the skills to identify and implement digital teaching methods and tools (Delcker & Ifenthaler, 2020).

2.2.1 Facilitating Learning

Facilitating learning is the first indicator of teachers' technology integration methods. This refers to the use of technology by teachers to facilitate students' engagement with information, material, and writing. Students are permitted to apply technology to develop, arrange, and edit written or performance works as a result of such technological integration. In addition, technology provides students with a means to obtain and assess information pertinent to the work at hand and to combine this knowledge in order to produce and deliver relevant outputs (Howard et al., 2020).

Additionally, technology has been employed to facilitate and enhance idea acquisition. Technology allows instructors to modify classroom activities, so boosting the learning experience. It continues to develop in significance as a tool for assisting instructors in facilitating the learning of their students. Curriculum pedagogy has moved from being teacher-centered to learner-centered due to technological advances. Learners take a more active role, enabling them to retain more

knowledge. They grow more autonomous as a result of the knowledge they are able to comprehend using technologically-based learning resources (Costley, 2014).

As a result, technology enhances learning and functions as a genuine educational instrument that enables learning. Integration of technology into the classroom increased the learning of students. The use of technology in the classroom enhances student learning and makes it more fun. Additionally, technology makes learning entertaining, engaging, and participatory. In addition, technology improves the motivation, social relationships, learning, and involvement of students (Baytak et al., 2011).

2.2.2 Data and Visualization

Data and Visualization is the second predictor of teachers' pedagogical utilization of technology. This practice is noticeable when teachers let students to use technology to work with data and/or visualizations. Students are encouraged to use online simulation sites and to collect, analyze, and present data in meaningful ways as part of this technology integration activity (Howard et al., 2020).

Computer-based instruction enables students to view and interact with actual events (Alessi & Trollip, 2014). Simulation may be used in the classroom to develop virtual experiments and studies. Students may utilize problem-based simulations to monitor experiments, evaluate new models, and gain a more intuitive understanding of complex systems (Sadler et al., 2019). In addition, simulations may be useful for simulating labs that are impractical, expensive, impossible, or dangerous to run. Simulations may facilitate conceptual change, provide students with open-ended experiences, and act as tools for scientific inquiry and problem-solving (Windschitl, 2018).

Simulations may aid in the development of scientific process skills, which are essential for scientific investigation. These talents fall into two categories: fundamental scientific process skills and integrated scientific process skills. Observing, deducing, measuring, communicating, classifying, and predicting are considered fundamental scientific process skills. In contrast, integrated scientific process skills are characterized as controlling variables, operationally defining, developing hypotheses, evaluating data, conducting experiments, and building models (Roth & Roychoudhury, 2013).

Simulations may assist students with graph communication, data interpretation, and variable control. Research might use computer simulations. Inquiry-based science learning. Hypotheses, experiments, data collection, and findings were used to conduct an inquiry. Computer simulation may augment and improve classroom education. Their findings show that simulations boost motivation and curiosity (Lazarowitz & Huppert, 2019).

2.2.3 Collaborative Teaching Strategy

Collaboration is the third measure of teachers' technology integration. This indicator relates to teachers requiring their pupils to collaborate and negotiate using technology to learn. This involves enabling students to collaborate with friends or classmates utilizing technology to solve issues, communicate knowledge about a topic, and convey their grasp of a subject (Howard et al., 2020).

Multiple studies have shown that adding technology into educational activities promotes more effective student collaboration. It facilitates the collection of knowledge and interaction with resources like as movies. Utilizing technology, students have the chance to dramatically increase their subject matter exposure and construct their own expertise. They also get the chance to participate in genuine social interactions and apply what they have learned. Involvement of students in real-world activities may facilitate the latter outcome (Hsu & Thomas, 2020).

2.2.4 Online interaction and communication

Teachers' online connection and communication is the fourth indicator of their use of technology in the classroom. Teachers engage in conversations, exchange student work, and communicate with parents using diverse technological means. This involves creating and/or maintaining a class website, engaging in online discussion forums and interacting with other educators, and sharing online resources with other educators (Howard et al., 2020).

Teacher cooperation enables teachers to work together and positively affect one other, which may boost students' learning. Working in teams, sharing duties, giving criticism, and creating trust are examples of teacher cooperation. ICT allows teachers to interact digitally through online sharing platforms. Online, teachers may share emails, papers, worksheets, and instructional videos. Teachers may remain connected and create professional connections via technology-based collaboration (Castro-Silva et al., 2017).

In addition, teachers use ICT for professional growth was recommended (Bhattacharjee & Deb, 2016). Using ICT in the classroom requires instructors to have technical skills and knowledge in addition to their subject matter expertise. Teachers must possess a variety of technical and pedagogical abilities, which must be continuously updated to reflect technological and pedagogical developments. Therefore, instructors who utilize ICT in the classroom have additional responsibilities, including mastering their subject matter, learning and continually updating their technical abilities.

METHODS

Serving outline for conducting the study in such a way that maximum control will be exercised over factors that could interfere with the validity of the research, a descriptive-correlational-predictive research design was utilized in this research. Selecting the most appropriate design is very much vital considering that it helps researchers obtain intended results that could be associated with the real solution. The correlational-predictive design involves collecting data or searching out records of a specified population and ascertaining the relationship among the variables and the influence of one variable to another (Creswell, 2011).

Moreover, the respondents of the study were the secondary school teachers who were conducting full or supplemental online learning modality. These teachers were from the four districts namely Magsaysay North District, Magsaysay South District, Bansalan East District, Bansalan West District, Matanao I District and Matanao II District I the province of Davao del Sur. This cluster is collectively known as MaBaMa, an initialism of all the aforementioned municipalities that the cluster comprises. From within the total population of secondary school teachers, the data sample

size was determined through Slovin's Equation. Upon the identification of the actual sample size, the research respondents were selected using a simple random sampling technique.

This research utilized two adapted research questionnaires. The Innovative Pedagogical Attitude Questionnaire of Beauchamp et al. (2010) was utilized as a survey questionnaire for teachers. This survey questionnaire consists of sixteen (16) behavioral questions with a five-point Likert scale from 'never' to 'always'. This research further utilized the Integration of Technology Questionnaire developed by Howard et al. (2020) which was modified by the researcher to suit the new normal context. The questionnaire consists of 27 questions with a five-point Likert-type scale from 'never' to 'always' and all respondents were asked to rate their pedagogical utilization of technology during the new normal education. It consists of six dimensions: Facilitating Learning; Data and Visualization; Collaborative Teaching Strategy; and Online Interaction and Communication. Final furnished copies of the instruments were validated by experts in the field or educational management and educational technology.

Before the actual commencement of the study, necessary permits to conduct such research surveys on school heads and teachers was first obtained. As such, written authorization and endorsements from authorities were first secured. With proper permission from the office of the superintendent, school heads were then properly communicated with a communication letter detailing the research goals, instruments and methods. Survey questionnaires were then administered to the research respondents through Google Forms on the date assigned by the school principal for their respective schools. Once the number of respondents who actually responded was reached, the data file were downloaded and subjected to data analysis using mean, Pearson Product Moment correlation Coefficient and Linear Regression for meaningful interpretation.

RESULTS AND DISCUSSIONS

The researcher's analysis and interpretations of the data are presented in this section. Discussions are presented categorically based on the sequence of the objectives of this study.

4.1 Teachers' Innovative Pedagogical Attitude

One important goal of this study was to measure the level of teachers' innovative teaching attitudes among public school teachers in the Matanao-Bansalan-Magsaysay school cluster. The level of teachers' innovative teaching attitudes in terms of its indicators are shown in Table 2.

Looking into the means of all indicators of teachers' Innovative Teaching Attitude, results showed that Idealized Influence (4.36), Motivation (4.34), Intellectual Stimulation (4.26), and Individual Consideration (4.28) obtained means which are described as high.

This result implies that teachers display certain attitudes that makes them role models to their learners all the time. Teachers were able to show to the students, in all situations, traits and behavior to sacrifice their own desires for the achievement of their students learning goals. This

result corroborates to a study which stated that when students are given tasks that they have no experience in doing, teachers play as a role model that students can observe and follow (Subagia, 2020). Further, teachers undoubtedly act as role models for their students, whether consciously or not, and this can influence development of students' attitudes, motivation and beliefs about themselves (Wong et al., 2020).

Table 2. Summary of Teacher's Innovative Pedagogical Attitude

Indicators	Mean	SD	Descriptive Equivalent
Idealized Influence	4.36	.644	Very High
Motivation	4.34	.709	Very High
Intellectual Stimulation	4.26	.640	Very High
Individual Consideration	4.28	.616	Very High
Overall Mean	4.29	.608	Very High

4.2 Level of Teacher's Utilization of Technology

The second objective of this study was to measure the level of teachers' level of teachers' pedagogical utilization of technology in the same locale, Matanao-Bansalan-Magsaysay school cluster. The level of teacher's pedagogical utilization of technology in terms of its indicators are shown in Table 3.

The overall mean for the level of teacher's pedagogical utilization of technology, as shown in Table 3, is 3.83 with an SD of .582 with a descriptive level of high. This means that the teachers who participated assessed their use of information communications technology in the teaching and learning such as in lesson preparation, instructional delivery and student assessments to be being manifested in majority of the cases of the instructional scenario.

This further implies that in almost all instructional processes, teachers use of technology to facilitate students' engagement with information, material, and writing by permitting learners to apply technology to develop, arrange, and edit written or performance works. Data also signify that in majority of the times in the classroom, teachers allow students to use technology to work with data and/or visualizations and are encouraged to use online simulation sites and to collect, analyze, and present data in meaningful ways as part of this technology integration activity.

This result supports to the study which found that the majority of teachers reported using technology for lesson planning, instructional delivery, and student assessments (Gray et al., 2019). Further, teachers integrate technology in their lessons to provide deeper understanding of the subject matter and improved critical thinking skills (Williams & Chinn, 2019). In addition, teachers who utilize technology to improve students' language skills and provided opportunities for them to practice and develop their writing and communication abilities using digital tools (Wang et al., 2011).

Additionally, when teachers allow students to use technologies, they developed better critical thinking and problem-solving skills, and were able to work more effectively with data and visualizations to understand scientific concepts (Desai & Ghiya, 2019). Technology allowed teachers to provide students with more opportunities to collaborate and engage with each other, as well as with digital tools to work with data and visualizations to develop a deeper understanding of the subject matter (Atkinson & Kyriacou, 2019).

Table 3 Summary of Teacher’s Utilization of Technology

Indicators	Mean	SD	Descriptive Equivalent
Facilitating Learning	4.03	.532	High
Data and Visualization	3.74	.743	High
Online Interaction and Communication	3.89	.607	High
Working Collaboratively	3.64	.920	High
Overall Mean	3.83	.582	High

4.3 Correlation between Teachers’ Innovative Pedagogical Attitude and Utilization of Technology

One important purpose of this study was to determine whether or not the teachers’ level of innovative teaching attitude has significant relationship to teachers’ utilization of technology. Results of the computations for the said objective is are shown in Table 4.

As shown in Table 4, the Pearson Product Moment Correlation was used to determine if teachers’ level of innovative pedagogical attitude has a significant relationship towards teachers’ pedagogical utilization of technology. The hypotheses were tested at a 0.05 level of significance. Data revealed that teachers’ level of innovative pedagogical attitude was correlated to teachers’ utilization of technology with an overall r-value of .213 and a p-value of 0.005 which is lower than 0.05 level of significance; thus, rejecting the null hypothesis (Ho). Result indicated that there is a significant relationship between the overall teachers’ level of innovative teaching attitude and teachers’ pedagogical utilization of technology in determined public secondary schools in the Magsaysay-Bansalan-Matanao cluster. Further, it implies that as teachers demonstrate behavioral models that empower and inspire students and boost students' confidence and that they always encourage student learning and personal development via group-based activities including experiencing course topics and reflecting the more likely they use of information communications technology in the teaching and learning such as in lesson preparation, instructional delivery and student assessments to facilitate students' engagement with information and learning materials.

Several recent studies have explored the relationship between teachers' innovative teaching attitude and their pedagogical utilization of technology. For example, a study found that there was a significant relationship between teachers' innovative teaching attitude and their pedagogical

utilization of technology. The study suggested that teachers who had a more positive attitude towards innovative teaching were more likely to integrate technology into their teaching practices (Dincer & Yesilyurt, 2019).

Similarly, another studies found that teachers' innovative teaching attitude was positively associated with their pedagogical utilization of technology, while perceived barriers to technology integration were negatively associated with their pedagogical utilization of technology (Lai & Gu, 2019).

Overall, these studies suggest that there is a significant relationship between teachers' overall level of innovative teaching attitude and their pedagogical utilization of technology. Teachers who have a more positive attitude towards innovative teaching are more likely to integrate technology into their teaching practices.

Table 4. Correlation

Variables	N	R	p
Teacher's Innovative Teaching Attitude* Teacher's p\Pedagogical Utilization of Technology	113	.213**	.006

**p-value < 0.01

4.3 Influence of Teachers' Level of Innovative Pedagogical Attitude on Utilization of Technology

The regression coefficients are provided in Table 6 to test the substantial influence of teachers' level of innovative pedagogical attitude to their utilization of technology.

The results demonstrated that the factor described above has a significant influence on the dependent variable, as evidenced by the computed F value of 6.144 and p-value of 0.000. Since the multiple linear regression computation yielded $p < 0.01$, the data suggests that teachers' teacher's innovative teaching attitude is determined to be a predictor of teacher's pedagogical utilization of technology.

Further, the R2 value of 0.132 implies that 13.2 percent of the variance of teacher's pedagogical utilization of technology was influenced by or can be attributed to teacher's innovative teaching attitude while the remaining 86.8 percent was attributed to other factors. The overall results of teacher's innovative teaching attitude significantly predict teachers' pedagogical utilization of technology. Hence, it signifies the rejection of null hypotheses.

Several recent studies have investigated the influence of teachers' innovative pedagogical attitude and their utilization of technology. These studies have found that teachers' innovative attitude significantly predicts their utilization of technology (Zhang & Zhu, 2019; Islam et al., 2019; Wang et al., 2019).

Moreover, the regression model can be presented by where B0 is the constant. Based on the value provided in the table of coefficients, the regression equation model is $y = B_0 + 0.104X_1 - 0.223X_2 + 0.612X_3 - 0.272X_4$. This implies that as the value of pedagogical utilization of technology changes by 0.104x for every one-unit change in idealized influence (if idealized

influence goes up by 2, utilization of technology goes up by 0.208, etc.) holding all else constant (all else equal). That means controlling for Motivation, Intellectual stimulation, and Individualized Consideration, Idealized Influence has this observed relationship. Likewise, holding Idealized influence, intellectual stimulation, and individual consideration constant, every one unit increase in motivation is associated with a 0.223x decrease in pedagogical utilization of technology but this association is not significant (p-value= 0.074). We can also note the y-intercept of 2.916, meaning that pedagogical utilization of technology = 2.916 when Idealized influence, Motivation, Intellectual Stimulation, and Individualized Consideration are all zero.

Considering the regression weights, intellectual stimulation is determined to have the highest and significant influence, among the constructs of teachers' innovative attitude, to teachers' utilization of technology. That is, for every unit increase of intellectual stimulation, dependent variable increases by 0.612. It is followed by idealized influence in which teachers' utilization of technology increases by 0.104 for every unit increase of the construct. Intellectual Stimulation and Idealized Influence are the only two constructs of teachers' innovative teaching attitude that statistically influence teachers' utilization of technology since the p-values are both less than the 0.05 level of significance which are 0.000 and 0.004 respectively.

Such results suggest that as teachers possess admirable traits that help them build mutual respect and trust with their students or being a good model to their learners and as teachers encourage students' creativity by changing the way they perceive challenges and approaching problems in unique and innovative ways, the more they make use of technology to enhance the abilities of students and create chances for them to refine and advance their skills through the use of digital resources.

Recent research supports the idea that teachers possess admirable traits that help them build mutual respect and trust with their students, and that these traits are essential for effective teaching (Yeh & Cheong, 2021). In addition to building positive relationships, teachers can also encourage students' creativity by changing the way they perceive challenges and approaching problems in unique and innovative ways. Teachers who adopt a growth mindset and encourage their students to see challenges as opportunities for growth and learning can foster creativity and innovation in the classroom (Kim & Bhong, 2020). Similarly, a study by found that teachers who use technology to facilitate student-centered learning and provide opportunities for creativity and innovation can enhance student engagement and motivation (Gu & Zhu, 2021).

Table 6. Regression of Associations between Teachers' Level of Innovative Teaching Attitude on Teachers' Pedagogical Utilization of echnology

Factors	B	SE	T	P
(Constant)	2.908	.318	9.158	.000
Idealized Influence	.104	.117	.885	.004**
Motivation	-.223	.124	-1.796	.074
Intellectual Stimulation	.612	.146	4.179	.000**
Individual Consideration	-.274	.139	-1.971	.052

R ²	.132
F	6.144
P	.000**

* p-value < 0.05, ** p-value < 0.01

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Based on the presented summary, these were the conclusion drawn:

Teachers at all times, display teaching practices that adopt innovative and creative teaching techniques to augment student learning. The constant display of Idealized Influence, Motivation, Intellectual Stimulation, Individual Consideration towards their learners manifests their very high level of fostering innovative teaching attitudes.

Additionally, teachers use of information communications technology in the teaching and learning such as in lesson preparation, instructional delivery and student assessments in almost all instructional processes. The way teachers manifest the use of technology in facilitating learning to students, immersing them to data and visualization, allowing learners interact, communicate and collaborate online, in almost every part of the instructional process demonstrates the high level of teachers pedagogical use of technology.

There is a substantial correlation between the overall level of teachers' innovative pedagogical attitude and teachers' use of technology.

The overall teachers' level of teachers' innovative pedagogical attitude significantly influences teachers' use of technology. However, only 13 percent of the variance of the teachers' use of technology was influenced by the overall teachers' innovative pedagogical attitude while the other considerable 86.8 percent was attributed to other factors.

5.2 Recommendations

After a thorough perusal of the results, these were the recommendations made:

To the Department of Education Officials, it is recommended to provide more training and development programs that focus on the integration of innovative teaching attitudes and pedagogical use of technology. It is essential to provide teachers with sufficient support and resources to enable them to enhance their teaching skills and technology use effectively. Moreover, the department can also collaborate with schools, educational institutions, and the private sector to develop and implement new teaching technologies and tools to help teachers facilitate learning more effectively.

To School Heads, it is recommended to encourage and recognize teachers who display innovative teaching attitudes and pedagogical use of technology. School heads can provide opportunities for teachers to showcase their innovative teaching practices and share their knowledge and expertise with their colleagues. They can also allocate resources to support teachers' professional development and provide access to the latest teaching technologies and tools. By doing so, school heads can create a culture of innovation and technology integration in their schools, ultimately improving student learning outcomes.

To Teachers, it is recommended to continue to adopt innovative and creative teaching techniques and integrate the use of technology in their teaching practices. Teachers can collaborate with their colleagues and share their knowledge and expertise to enhance their teaching skills and technology use. They can also attend training and development programs to learn about new teaching technologies and tools and how to use them effectively in their classrooms. By doing so, teachers can create a positive learning environment that fosters student engagement and enhances learning outcomes.

To Students, it is recommended to take advantage of the opportunities provided by their teachers to interact, communicate, and collaborate online. Students can explore and immerse themselves in the data and visualization provided by technology, which can enhance their understanding and retention of concepts. They can also participate in online discussions, ask questions, and seek feedback from their teachers and peers, ultimately improving their learning outcomes.

To future researchers, it is recommended to conduct further research to identify the factors that influence teachers' pedagogical use of technology, besides their innovative teaching attitudes. future research can also investigate the impact of innovative teaching attitudes and technology integration on student learning outcomes, as well as explore new teaching technologies and tools that can enhance teaching practices and student learning. by doing so, future researchers can provide insights that can inform educational policies and practices and contribute to the improvement of teaching and learning outcomes.

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